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JOHN MICHELS, Editor.

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To Correspondents.

All communications should be addressed to the Editor—Box 3838, P. O., New York—with name and address of writer, not necessarily for publication without consent.

Scientific papers and correspondence intended for publication, should be written *legibly* on one side only of the paper. Articles thus received will be returned when found unsuitable for the Journal.

Those engaged in Scientific Research are invited to make this Journal the medium of recording their work, and facilities will be extended to those desirous of publishing original communications possessing merit.

Proceedings of Scientific Societies will be recorded, but the abstracts furnished must be signed by the Secretaries.

Both questions and answers in "Notes and Queries" should be made as brief as possible; an answer appearing to demand an elaborate reply, may be written in the form of an article.

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ANALYSIS OF WATER.

The trouble attending the making of analyses of water is considerable, and may account for the reluctance of chemists to make such investigations unless under special orders.

As the value of such analysis of the water supply of cities is great, especially at a time when the subject is receiving so much attention, we gladly welcome some valuable work accomplished in this direction at Newark, New Jersey, by Dr. Herman H. C. Herold, of that city, and placed at the disposal of "Science."

As Dr. Herold has made his calculations both for grains in the imperial gallon, and also according to the metric system, we reproduce both in tabular form.

To this record is added the analysis of water from a New York well, also made by Dr. Herold, and described by him at page 13 of this Journal, forming part of No. 2, issued July 10th last.

The inference Dr. Herold draws after making these analyses, is that relatively the water from the Passaic river stands at the head of the list, as being the most favorable as a water supply for Newark, in comparison with that obtained from driven wells.

Still the Aqueduct Water (Passaic) is not in a satisfactory condition, its imperfections being due to impurities derived from the city of Newark itself, and not from Paterson and other towns above it, as the run of twelve miles would oxidize such organic matter.

The results of an analysis of the aqueduct water of Newark City, made by Dr. Herold in the month of June, as compared with the results of the analysis made in March, shows a decided deterioration in the condition of the water during the time between the two periods. To a very great extent this may be explained as being a result of natural causes. During the interval we suffered from a prolonged drought, the lowlands being thoroughly drained and converted into pools, the flood-tide, flowing farther up the river than is usual, carried with it much of the impurities of the city which are emptied into the river. The distance being short, these impurities did not have adequate opportunity for oxygenation and destruction. As will be seen by a comparison of the following tables, the amount of solid residue, 6.688 grains per imperial gallon, is about double that obtained by the former analysis, which showed only 3.147 grains per imperial gallon. The amount of organic matter has increased $2\frac{1}{2}$ times, or 0.957 grains against 0.378 grains of the former analysis. A still more alarming increase is found in the chlorine, 0.636 grains to 0.211 grains, found in the former analysis—an increase of 300 per cent.

Dr. Herold also states that his views regarding the advantages of securing a water supply for cities from running streams is strengthened by further examination of the question and everyday experience. Whatever organic matter may find its way into a running river is necessarily largely diluted. In the constant change of position and great increase of surface it is exposed to the oxygen of the air and also to that in the water; the plants along the bottom and sides of the stream are sure to absorb a certain proportion and by these means, if the water is only given far enough to flow, the matter contained in it cannot but be neutralized and to a very great extent destroyed. The great advantage to cities in being supplied from such a source is now generally conceded by all authorities who have made the subject of hygiene a study.

Constituents.	1880. Grains in an Imp. Gal. Newark City Aqueduct. March.	Newark City Aqueduct. June.	Public Well, cor. Orange and Broad Streets, Newark. March.	Public Well, cor. Ferry and Congress Streets, Newark. March.	Balbach's Artesian Well, Newark. March.	Newark Driven Well. June.	New York Driven Well. June.
Total solid constituents	3.147	6.688	22.277	36.929	125 833	49.782	31.434
After incineration	2.377	......	17.673	21.312	92.849	......	......
Lime (CaO)	1.357	1.225	7.150	6.842	40.953	6.940	4.396
Sulphate of lime (Cao, SO_3, 2 HO)	None.	......	6.016	6.016	120.346	6.052	8.665
Carbonate of lime (CaO, CO_2)	2.220	......	9.270	8.717	3.155	7.940	......
Bicarbonate of lime (CaO, 2 Co_2)	......	......	......	......	......	......	3.304
Magnesia, (MgO)	Trace.	0.452	Trace.	Trace.	Trace.	2.468	3.162
Chloride of Magnesium (Mg Cl_2)	......	......	......	......	......	......	1.815
Carbonate of Magnesia	......	......	......	......	......	......	5.824
(5 MgO, 4 Co_2, 6HO)	......	......	......	......	......	5.981	......
Chlorim (Cl.)	0.211	0 636	3.392	5.939	0 845	8.486	6.374
Chloride of Sodium (Na Cl)	0.379	......	5.596	9 794	1 398	13.901	8.215
Soda (Na_2O)	......	0.318	......	......	......	12.187	4.315
Sulphuric Acid (SO_3)	None.	1.245	2.798	2.798	55.974	9.865	5.096
Sulphate of Sodium (Na_2O, SO_3)	......	......	......	......	......	11.188	......
Iron (Fe O)	Trace.	......	Trace.	Trace.	Trace.	......	......
Silica (Si O_2)	Not estimated	1.293	Not estimated.	Not estimated.	Not estimated.	4.701	1.736
Carbonic Acid (Co_2)	......	0.705	......	......	......	7.199	4.396
Organic and Volatile matter	0.378	0.957	1.395	12.408	None.	7.374	6.446

Constituents.	1880. Grammes in a Litre. Newark City Aqueduct. March.	Newark City Aqueduct. June.	Public Well cor. Orange and Broad sts., Newark. March.	Public Well cor. Ferry and Congress sts., Newark. March.	Balbach's Artesian Well, Newark. March.	Newark Driven Well. June.	New York Driven Well. June.
Total solid constituents	0.0450	0.0956	0.3184	0.5278	1.7884	0.7115	0.4485
After incineration	0.0340	......	0.2526	0.3046	1.3270	......	......
Lime (CaO)	0.0194	0.0176	0.1022	0.9780	0.5853	0 0992	0.0692
Sulphate of lime (CaO, So_3, 2HO)	None.	0.0298	0.0860	0.0860	1.7200	0.0865	0.1236
Carbonate of lime (CaO, CO_2)	0.0346	0.0096	0.1325	0 1246	0.0451	0.1135	......
Bicarbonate of lime (CaO, $2CO_2$)	......	......	......	......	......	......	0.0471
Magnesia (MgO)	Trace.	0.0064	Trace.	Trace.	Trace.	0.0353	0.0451
Chloride of Magnesium ($MgCl_2$)	......	0.0050	......	......	......	......	0.0259
Carbonate of Magnesia	......	0.0105	......	......	......	0.0855	0.0830
5 MgO, $4CO_2$, 6 HO)	......	......	......	......	......	......	......
Chlorine (Cl)	0.0030	0.0090	0.0485	0.0849	0.0121	0.1213	0.0909
Chloride of Sodium (NaCl)	0 0050	0.0086	0.0800	0.1400	0.0200	0.1987	0.1172
Soda (Na_2O)	......	0.0035	......	......	......	0.1742	0.0616
Sulphuric Acid (SO_3)	None.	0.0175	0.0400	0.0400	0.8000	0.1410	0.0727
Sulphate of Sodium (Na_2O, SO_3)	......	......	......	......	......	0.1599	......
Iron (FeO)	Trace.	......	Trace.	Trace.	Trace.	......	......
Silica (SiO_2)	Not estimated.	0.0185	Not estimated.	Not estimated.	Not estimated.	0.0672	0.0248
Carbonic Acid (CO_2)	......	0.0101	......	......	......	0.1029	0.0627
Organic and Volatile matter	0.0054	0.0136	0.0104	0.1778	None.	0.1054	0.0920

We have been shown a number of photographs copyrighted by Mr. Geo. Cumming, of this city, entitled, 'Studies of the Color Glow, or Rectilinear Spectrum." The original colored line drawings which were exhibited in 1879, at the Academy of Design and American Institute, consist of geometrical forms drawn in straight lines, in many hues of color, forming central globes with bright scintillating effects. While the photographs give but the form on a much reduced scale without, of course, the chief beauty—the blended color-lines--they are curious as illustrating the depth of tone obtained by the camera from any given shade or tint—light green for instance coming out deep black and violet being almost lost in the process. The originator has more of an artistic than a practical feeling in their conception, and calls his various designs *spring*, *sunset*, *autumn*, *sunrise*, etc; his idea being to embody a theory of color with pleasing effect, rather than to stamp himself as either an artist or designer.

We desire to direct special attention to the meeting of the American Society of Microscopists at Detroit, on the 17th of this month, presided over by Professor H. L. Smith, of Hobart College, Geneva, N. Y.

The conception of such a national meeting of microscopists is most excellent, and under such able leadership the results of the meeting cannot fail to promote the extension of microscopical research, and its elevation to the high position it should occupy, as one of the greatest aids to our possession of scientific knowledge, the comprehension of the workings of Nature and "of things around us."